Expert elicitation process

Expectations and observations

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Task Assignment

- **Nov, 2006 - Have current, regional specific nonresidential contents values and damage curves included in the re-evaluation of Sacramento Study**
- **Nov, 2006 – Have the re-evaluation study completed by June, 2007, including ITR and printing . . . . have values and damage curves completed by April, 2007 to go into FDA**

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What to do . . . .what to do ?

- ?????

What about a survey using OMB approved questionnaire?

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What about using other districts data more current than ours?

What about using the expert elicitation method that New Orleans used in their post Katrina work?

Problems . . . Problems?

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- Could we use New Orleans data?
- Could we use Kansas City District approach?
- Can we develop an approach to get the answers with virtually no time left?
- How ‘bout an expert elicitation . . . . and how would we do it?

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What is Expert Elicitation ?

- Defined as a formal, heuristic process of obtaining information or answers to specific questions about certain issues.
- Preferably, it should be performed during a face-to-face meeting of experts that is assembled specifically for the issues under consideration.
- The process should not be used in lieu of rigorous reliability and risk analytical methods, but should be used to supplement them.

Chronology of the Process

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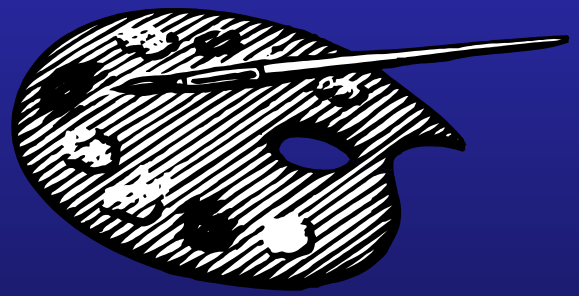
- Nov 2006 – Write Scope of Work for Contract Work
- Dec 2006 – Let scope out for bid, get IGE put together during Holiday period
- Jan 2007 – Award Contract and receive the first of four deliverables
- Feb 2007 – Nominate experts and elicitation methodology for approval
- Mar 2007 – Conduct the process and provide valuations and tables for use in HEC FDA
- Apr 2007 –Submit Draft Report Document



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Grouping by Prototype

- **Group by Prototype**

  Evaluation would be based on the type of business

  Examples include:

  - **Commercial Office – one story/two story**
  - **Commercial Food – stores that sell perishables**
  - **Industrial Warehouse – storage and transportation**
  - **Commercial Medical – dental, care facilities**

Content Categories

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- **Group Contents by Category**

  Panelists were instructed to consider replacement costs of five categories within each Prototype

- **Categories included:**
  - **<u>Non-depreciable items</u> including 1) inventory and products, and 2) merchandise**
  - **<u>Depreciable items</u> including 1) equipment, 2) fixtures, and 3) furniture**

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What did the Final Product Look Like?

- **Valuations of each Category**
  - **Both depreciable and non-depreciable categories were valued for each Prototype**

- **Depth-damage relationships for each categories included:**
  - **Mean estimate by percent of category damaged for in one-foot increments**

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Lessons Learned

- Get good people on the team – verify credentials and look for the best you can get!
- Have a good facilitator that understands the issues and understands statistical analysis
- Think and plan the methodology ahead of time
- Have observers there to validate the process and clarify information from the Corps perspective

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Expert Panel Elicitation Sessions

- **New Orleans District**
  - Jefferson and Orleans Parishes, LA - 1996
  - Houma, LA - 1997
  - Donaldsonville, LA – 2006
- **Sacramento District - 2007**
- **Alexandria, VA - 2008**

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New Orleans Expert Panels

- Site-specific; residential and non-residential; structures and contents
- New panel for each study; 6 - 8 local experts
- Content valuation based on surveys
- Pros: local expertise; uncertainty ranges
- Cons: limited number of surveys; not random sample; costly and time consuming

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Sacramento Expert Panel

- Site-specific; non-residential; contents
- Added an appraiser to the panel
- Valued contents on a cost per square foot basis

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IWR and FEMA National Expert Panel

- Generic; non-residential; structures and contents
- Structure = Shell + Tenant Build-Out
- Prototype non-residential categories – structure and contents
- Valuation consistent with Marshall and Swift

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2 Prototypical Non-Residential Building Shells:

- **Engineered:**
  - Class A – Fireproof Structural Steel Frame
  - Class B – Reinforced Concrete Frame
  - Class C – Masonry Bearing Walls
  - Class M – Mill Type Construction

- **Pre-Engineered**
  - Class D – Wood or Steel Stud Framed Exterior Walls
  - Class P - Wood Frame and Metal Walls (Pole Frame)
  - Class S - Metal Frame and Walls

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Components Added to the Building Shells

Structure Bridge/Tenant Build-Out

- Based on type of business
- Components are not moveable
- Example: built-in refrigerated cases

Contents

- Based on type of business
- Contents are moveable
- Equipment, Furniture, Inventory and Products

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20 Prototype Non-Residential Categories

- Office buildings (1-sty)
- Non-furniture (retail)
- Furniture (retail)
- Convenience stores
- Supermarkets
- Upscale restaurants
- Fast food
- Medical office buildings
- Hospitals
- Automotive repair
- Hotel/motels
- Refrig warehouse
- Non-refrig warehouse
- Light manufacturing
- Correctional facilities
- Schools
- Religious facilities
- Recreation facilities
- Fire stations
- Apartment buildings

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4-Step Process

- Define prototype categories
- Value structures and/or contents
- Estimate damages at various increments of flooding
- Develop uncertainty range

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Who Are the Participants?

- **Panel members with appropriate expertise**
  - Appraisers – valuation
  - Interior designers – placement of contents
  - Insurance adjusters – damages at various depths of flooding
  - Restoration contractors – cleanup and repair costs
- **Moderator, technical facilitators, peer reviewers**

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How to Conduct Sessions

- Orientation for panel members
- Sequester the experts
- Develop assumptions relevant to all categories
- Members work independently, then discuss as group
- Estimates can be revised after group discussions
- Differences in expert opinions = uncertainty ranges

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Points to Ponder

- Conduct sessions early in the study process
- Use when project-specific data is required
- Ensure consistency with:
  - Structure inventory
  - Marshall and Swift Valuation
  - Triangular probability distribution
- Future uses
  - Emergency costs
  - Structure raising construction costs